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Effects of counterpressure breathing with steam inhalation on lung function in stable asthma

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Introduction: Intensive counterpressure breathing regimes improve lung function of asthmatics. However, the effects of the low or moderate load regimes are less studied. Aim: To study the effects of the moderate load counterpressure breathing on lung function of patients with pharmacologically treated asthma. Method: Adult volunteers with mild or moderate asthma (N=45) were randomized to two groups A (n=25) and B (N=20). Group A performed a daily 15 min counterpressure breathing with warm water steam inhalation by four weeks with a WellO2™ device while subjects in group B continued their normal life without intervention. The counterpressure on ex- and inhaling was adjusted to 30% of the individual MEP. All subjects used at least two inhaled pulmonary medicines throughout the study. Spirometry variables, MEP and MIP were measured before and after the intervention for the groups A and B using the same interval. Results: Baseline values of the lung function in the groups were comparative. The following endpoints increased significantly more in the group A than in the group B: MEP (mean +12.4 %, vs. +3,5%, p=0.047), MIP (mean +20.1 % vs. + 0.82%, p=0.046), VC (mean +3.7 % vs. 1.5%, p=0.017), and forced expiratory time (FET) (mean +15.5%, vs. -5,0%, p=0.024.). In the group A the increases from the baseline were very significant: MEP (p=0.004), MIP (p<0.001), VC (p<0.001), and FET (p<0.001). No side effects due to the intervention were observed. Conclusions: Moderate load counterpressure breathing combined with the steam inhalation for four weeks increases respiratory muscle power, VC and FET in patients with stable asthma on their normal lung medication.